

# Psychosocial and Mental Health Difficulties among Adolescents with Body Image Dissatisfaction

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## Research Article

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# Abstract

**Background:** Adolescents' psychosocial and mental health is affected by body image. However, adolescent body image dissatisfaction (BID) is noted as an epidemic problem worldwide and limited studies in developing countries were performed. This study aimed to assess the association between psychosocial-mental health difficulties and BID among adolescents in Indonesia.

**Methods:** We conducted a cross-sectional study in high schools in Jakarta selected by cluster random sampling. The randomly selected students aged 14-18 from each school were provided with online questionnaires, including Body Dissatisfaction Scale (BDS), Strength and Difficulties Questionnaire (SDQ), and Kessler Psychological Distress Scale (KPDS).

**Results:** There were 327 subjects who filled out the questionnaire completely and were included in the analysis. The common psychosocial and mental health difficulties in adolescents in this study were hyperactivity-inattention, peer problems, and emotional problems (30%, 20.8%, and 20.2% consecutively). The overall psychosocial and mental health scores were not statistically higher in the BID group, but the emotional symptom scores were significantly higher in the BID group ( $p=0.023$ ). The correlation between stress level and emotional symptom scores is also strong ( $p<0.001$ ,  $r=0.701$ ).

**Conclusion:** Public health interventions are needed to assist adolescents to improve their body confidence and develop a resistant coping mechanism.

## Introduction

Mental health problems have become a notably high prevalent issue worldwide. Studies show psychosocial and mental disorders are one of the leading causes of disability at younger ages and lead to adverse outcomes in later life.<sup>1,2</sup> Most developing countries are still struggling with mental health issues, especially among adolescents, while they face limited resources and inequities in access to mental health facilities.<sup>3</sup> Like the other developing countries, prevalence data on mental disorders in adolescents in Indonesia are still scarce and mostly locally applied. However, Indonesia has recognized the burden of mental health problems in adolescents and paid more attention to these issues.<sup>4</sup>

Psychosocial and mental health which includes emotional, psychological, and social well-being is influenced by several external and internal factors. One of the evidence-based internal factors is body image. Adolescence is a crucial stage of life in developing a healthy and positive body image, yet facing challenging possible mental health issues.<sup>5</sup> Body image practically has occurred since childhood when children questioned their ability to appear "good" and be accepted.<sup>6</sup> They step into the adolescence period to build their belief and interpersonal things. Moreover, there are physical changes in this stage which often clash with the definition of beauty, fineness, and "ideal" appearance standard based on the cultures which mostly assert that a woman is beautiful when she is thin and has white skin colour or that a man is good-looking when he has a muscular body.<sup>7</sup> However, many studies reported that teenagers

experienced body image dissatisfaction (BID) and this group carried a higher risk of eating disorders and depression.<sup>8,9</sup> Additionally, BID in adolescents hinders their personal and social functions to achieve vigorous mental health.<sup>10</sup>

Research in many developing countries, including Asian countries, showed a high prevalence of BID in teenagers.<sup>11-5</sup> Unfortunately, Indonesia still has lack data on BID in adolescents despite its possible rising impacts on psychosocial and mental health. This study aimed to assess the association of psychosocial and mental health difficulties with BID among adolescents in Indonesia.

## Methods

This was a cross-sectional study conducted from August to November 2020 at 16 high schools located in four cities in Jakarta province. The study was part of a larger study on the body image of adolescents in Jakarta which also found the association of BID with unhealthy eating behaviour in this group of age.<sup>16</sup> The subjects of this study were high school students from selected schools in Jakarta, who agreed to participate in the study by signing the assent form and obtained approval from parents by signing their informed consent.

### *2.1 Data collection*

We selected public and private high schools in four cities in Jakarta using cluster random sampling and 16 high schools participated in the study. We chose the classes from each included school using a random number generator application and all students in the class were invited until the number of subjects accomplished the minimum sample requirement. The questionnaires were sent to each selected student after having parental consent.

The questionnaires for demographic information, body dissatisfaction scale, psychosocial and mental problem scores, and factors related to BID such as stress level and influences from parents, friends, and social media (SM) followers were generated using the Redcap<sup>®</sup> application with the host of the Faculty of Medicine Universitas Indonesia.<sup>17-8</sup> All questionnaires were shared through an electronic link to the class groups organized by the teachers and could be retrieved by the selected students using their devices.

### *2.2 Measures*

We obtained data through these questionnaires and scales distributed online to subjects:

1. Body image dissatisfaction was measured by the body dissatisfaction scale by Mutale,<sup>19</sup> which consisted of nine body image scales for males and females. BID was defined as a minimum of two-unit differences between actual body image and ideal body image scales.
2. Psychosocial and mental health difficulties were assessed using the Indonesian version of the Strengths and Difficulties Questionnaire (SDQ).<sup>20-1</sup> The SDQ consists of 25 items that were divided into five scales: emotional symptoms, hyperactivity, peer problems, conduct problems, and pro-social

scales. Each item was given a score of 0=not true, 1=somewhat true, or 2=certainly true. Yet, there are five items in the questionnaire which are scored 2 for 'not true', 1 for 'somewhat true', and 0 for 'certainly true'. The score of each scale was calculated by adding the score of relevant items, thereby generating a scale score ranging from 0 to 10. The total difficulties scores varied from 0-40, obtained by totalling the scores for emotional symptoms, hyperactivity, conduct problems, and peer problems. The result was then defined into one of categories; normal, borderline or abnormal.

3. Factors related to BID which were measured in this study are stress and sociocultural influences to achieve ideal appearance standards from parents, friends, and SM followers. The stress level was determined using the Kessler Psychological Distress Scale (KPDS)<sup>22-3</sup> which consists of 10 questions with 5 possible answers (1=never, 2=rarely, 3= sometimes, 4=often, 5=always). The total score was defined as no stress (<20), mild stress (20-24), moderate stress (25-29), and severe stress ( $\geq 30$ ). While the sociocultural influences were measured through a questionnaire asking how frequent their parents, friends, and SM followers comment on their bodies (encouraging or discouraging weight loss, weight gain, or physical appearance). The cut-off score was determined by the receiver operating characteristic (ROC) curve for the sociocultural factors to the body dissatisfaction scale. Having a negative influence from friends was defined by a score of >1, from social media followers was >1, and from parents was >2. The total score of 0-4 was classified as a positive influence from all factors, while the total score of 5-24 was defined as a negative influence.

### ***2.3 Statistical analysis***

Data were recorded in the Redcap® application and analysed using SPSS version 20. The KPDS and SDQ have been validated in the Indonesian populations in other studies.<sup>21,23</sup> Sociocultural influences questionnaire validation was performed, and its reliability was assessed with the Alpha Cronbach value.

The association between the BID and SDQ score were analysed using Mann-Whitney U for the non-parametric test. Whilst, the associations between BID with stress level and sociocultural influences were analysed with Chi-square for bivariate analysis and logistic regression for multivariate analysis.

## **Results**

There were 327 students from 11 public high schools and five private high schools in Jakarta province who participated in this study. The characteristics of the subjects were shown in Table 1. The ages varied from 14 to 18 years old. Nearly 66% of the subjects were female and more than half of these teenagers came from public high schools (59.8%). The schools were equally distributed throughout the four districts of Jakarta, the current capital city of Indonesia, with most schools located in Central Jakarta (37.7%).<sup>16</sup> The most common psychosocial and mental health difficulties in adolescents in this study were hyperactivity-inattention, peer problems, and emotional problems (30%, 20.8%, and 20.2% repeatedly). Moreover, we found a higher percentage of positive influences on body image from parents, friends, and social media followers than their negative influences on body image. However, the negative influences

were coming more frequently from parents than friends and followers. Only 36.4% of the subjects had no stress, while others had stress with various levels from mild to severe.

[Table 1]

The psychosocial and mental health scores in adolescents were described in Table 2. The emotional symptom score was significantly higher in the BID group ( $p=0.023$ ), while the other scale scores were not.

[Table 2]

The relationship between stress and sociocultural influences on BID were described in Table 3. All influences and stress levels were significantly associated with BID. Further analysis with logistic regression showed that negative influences from parents and higher stress levels were significantly correlated with BID with respectively OR of 1.9 (CI 1.05-3.59;  $p=0.045$ ) and 1.4 (CI 1-1.48;  $p=0.004$ ).

To address the potential confounding of stress levels to the association between BID and psychosocial-mental health, further analysis was performed. A significant correlation was found between stress level and SDQ scores ( $p<0.001$ ,  $r=0.661$ ), suggesting that stress level might influence the relationship between the BID and total psychosocial and mental health score. Moreover, the correlation between stress level and emotional symptom score is also strong ( $p<0.001$ ,  $r=0.701$ ).

[Table 3]

## Discussion

This study was conducted in Jakarta, the most populated city and the current capital city of Indonesia. Our study represented a large-scale study on body image among adolescents in a developing country and reflected the scale of the BID. However, this study was conducted during the mass social restriction, school closures, and implementation of online learning due to the COVID-19 pandemic. Therefore, despite performing direct observation, anthropometric measurement and questionnaire filling to each subject, we conducted a data collection procedure using an internet-based questionnaire. The subjects' responses in our study were high, reaching about 82% of the recruited and 79% of them filled in completely. This result suggested that internet-based questionnaires may assure subjects' convenience in answering quite sensitive questions such as their perspective on their body image as well as privacy and confidentiality. Previous internet-based studies on adolescents obtained only 28–47% of emails back and they could increase to 90% when the questionnaires were finalized at schools.<sup>24-5</sup> The factors on assurance of privacy and confidentiality from internet-based research were also shown by another study.<sup>26</sup> To anticipate high incomplete data, the questions in this internet-based study were issued sequentially and preferred the Likert scale more, as other studies in the adolescent group have been done.<sup>24,27</sup> Nevertheless, previous internet-based studies showed a comparable internal consistency, validity, reliability, confidentiality, and experienced autonomy by the teenagers, to the paper-based studies.<sup>24,28-9</sup>

A higher percentage of hyperactivity problems in this study was also shown in several similar school-based studies using SDQ self-report in Indonesia.<sup>30-1</sup> Other studies mostly showed more emotional difficulties in teenagers compared to other scales of SDQ.<sup>32-3</sup> However, our study also showed higher percentages of the emotional problem as one of the commonest difficulties. Those studies using SDQ showed that psychosocial and mental health difficulties faced by teenagers are affected very much by their environment (peers and parents), residence areas, and socio-economic status.

Many studies indicated BID during the adolescence period was a risk factor for mental health problems, especially depression and anxiety.<sup>12,34-8</sup> In this study, the overall psychosocial-mental health score was not statistically higher in the BID group, but the emotional symptom score differed statistically between the two groups. The emotional symptom scale in SDQ correlated highly with depression and anxiety symptoms.<sup>39</sup> BID could induce this emotional symptom through the lack of confidence mediation, in which BID lowers self-confidence and then initiates depression and anxiety. Besides, the huge amount of pressure to have an ideal appearance from surroundings could potentially influence a teenager to feel unattractive and unaccepted by the group, then leading to depressive affect and diminished self-confidence.<sup>37</sup> Moreover, the older adolescent also experienced other triggers such as unsuccessful diet, criticisms towards him/herself, and interpersonal problems, which aggravated the BID to induce emotional symptoms.<sup>34</sup>

The pressures to have an ideal appearance, which stimulate BID, originated from friends, parents, and media.<sup>40</sup> In this study, the influence from parents was significantly associated with BID while the influence from friends and SM followers was not. The previous study also showed this occurrence and the impact of parental influence on BID was not only generated from verbal expression but also from the non-verbal expression of the parents who expected their children to achieve the ideal appearance standard and from their practice as adults to acquire the ideal appearance seen by their children.<sup>41</sup> With no intention of teasing, parents' encouraging comments on the teenagers' appearance could promote dissatisfaction with body image.<sup>42</sup> This might be due to their lower intolerance of their parents' inputs than of their peers. Hence, more research is needed that explores this special kind of parental pressure.

The higher stress level was also significantly associated with BID in this study. Murray et al<sup>43</sup> studied the relationship between psychological stress and BID using the *Adolescent Stress Questionnaire*. As the questionnaire was too long and should be internet-based, this study used Kessler-10 instead to determine a similar relationship. Apart from psychological stress screening, Kessler-10 was also known to correlate with depression and anxiety in adolescents.<sup>19</sup> This might explain the association between stress as a risk factor for BID as it was also correlated with mental health in teenagers. Nevertheless, many issues that happened to teenagers could potentially trigger their stress levels and should be further studied.

## Conclusions

BID was associated with the emotional symptoms of the adolescent, but not with the overall score of mental health. Higher stress levels and parental influence were associated with the prevalence of BID in the urban adolescents of Indonesia. Interventions are needed to assist the adolescent in strengthening their body confidence, developing resilient coping mechanisms, and reducing unrealistic ideal appearances.

## **Abbreviations**

BID: body image dissatisfaction; BDS: Body Dissatisfaction Scale; SDQ: Strength and Difficulties Questionnaire; KPDS: Kessler Psychological Distress Scale; SM: social media; COVID-19: coronavirus disease of 2019.

## **Declarations**

### **Ethics approval and consent to participate**

This study has obtained the approval issued by the Health Research Ethics Committee Faculty of Medicine Universitas Indonesia-dr. Ciptomangunkusumo General Hospital with number KET-264/UN2.F1/ETIK/PPM.00.02/2020 on March 11 2020. Informed consent was obtained from all subjects and their legal guardian. All methods were carried out in accordance with relevant guidelines and regulations or the declaration of Helsinki.

### **Consent for publication**

Not applicable.

### **Availability of data and materials**

The datasets used and/or analysed during the current study are available from the corresponding author upon reasonable request.

### **Competing interests**

The authors declare no financial or non-financial competing interest in this study.

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### **Authors' contributions**

All authors contributed to the conception and design of the study. Material preparation, data collection and analysis were performed by BEM, KN, and YD. The first draft of the manuscript was written by BEM

and KN, and all authors commented on previous versions of the manuscript. All authors read and approved the final manuscript.

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## Tables

Table 1. Characteristics of the subjects

Variable	Descriptive
Age, median (min; max)	16 (14; 18)
Sex, n (%)	
Male	110 (33.6)
Female	217 (66.4)
School types, n (%)	
Public school	196 (59.8)
Private school	132 (40.2)
Influence from social media followers, n (%)	
Positive influence	315 (96.3)
Negative influence	12 (3.7)
Influence from friends, n (%)	
Positive influence	280 (85.6)
Negative influence	47 (14.4)
Influence from parents, n (%)	
Positive influence	203 (62.1)
Negative influence	124 (37.9)
Stress level, median (min; max)	23 (10; 50)
No stress, n(%)	119 (36.4)
Mild stress, n(%)	64 (19.6)
Moderate stress, n(%)	62 (19.0)
Severe stress, n(%)	82 (25.1)
Psychosocial-mental health difficulties, n (%)	
Overall problems	77 (23.5)
Emotional problem	66 (20.2)
Conduct problem	13 (4)
Hyperactivity-inattention	98 (30)
Peer-problem	68 (20.8)
Prosocial	21 (6.4)

Table 2. Bivariate analysis of BID and psychosocial-mental health scores

Variable	Body image		P-value
	No BID	BID	
Psychosocial-mental health scores median (min-max)	16 (7; 40)	17 (7; 32)	0.053 <sup>a</sup>
Emotional problem			
Conduct problem	4 (0; 10)	5 (0; 10)	0.023 <sup>a*</sup>
Hyperactivity-inattention	2 (0; 10)	2 (0; 7)	0.109 <sup>a</sup>
Peer-problem	5 (2; 10)	6 (2; 10)	0.510 <sup>a</sup>
Prosocial	4 (2; 10)	4 (1; 9)	0.632 <sup>a</sup>
	7 (2; 10)	7 (3; 10)	0.836 <sup>a</sup>

<sup>a</sup>Mann-Whitney U test

\*p-value<0.05 was considered significant.

Table 3. Bivariate analysis of sociocultural influences and stress on BID

Variable	Body image		P-value
	Not BID	BID	
Influence from followers			0.006 <sup>a*</sup>
Positive influence	163 (54.4)	131 (44.6)	
Negative influence	10 (30.3)	23 (69.7)	
Influence from friends			0.019 <sup>a*</sup>
Positive influence	113 (58.2)	81 (41.8)	
Negative influence	60 (45.1)	73 (54.9)	
Influence from parents			<0.001 <sup>a*</sup>
Positive influence	95 (68.3)	44 (31.7)	
Negative influence	78 (41.5)	110 (58.5)	
Influence from all tripartite factors			<0.001 <sup>a*</sup>
Positive influence	111 (65.3)	59 (34.7)	
Negative influence	62 (39.5)	95 (60.5)	
Stress level			0.002 <sup>a*</sup>
No stress	70 (58.8)	49 (41.2)	
Mild stress	43 (67.2)	21 (32.8)	
Moderate stress	27 (43.5)	35 (56.5)	
Severe stress	33 (40.2)	49 (59.8)	

<sup>a</sup>Chi-square

\*p<0.25 was included in the multivariate analysis